

State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
Division of Aquatic Resources  
Honolulu, Hawaii 96813

June 9, 2011

Board of Land  
and Natural Resources  
Honolulu, Hawaii

Request for Authorization and Approval to Issue a Papahānaumokuākea Marine National  
Monument Research Permit to Dr. Charles L. Littnan, National Marine Fisheries Service, Pacific  
Islands Fisheries Science Center, for Access to State Waters to Conduct Juvenile Hawaiian  
Monk Seal Survival-Enhancement Activities

The Division of Aquatic Resources (DAR) hereby submits a request for your authorization and approval for issuance of a Papahānaumokuākea Marine National Monument research permit to Dr. Charles L. Littnan, Leader, Hawaiian Monk Seal Research Program, pursuant to § 187A-6, Hawaii Revised Statutes (HRS), chapter 13-60.5, Hawaii Administrative Rules (HAR), and all other applicable laws and regulations.

The research permit, as described below, would allow entry and research activities to occur in Papahānaumokuākea Marine National Monument (Monument), including the NWHI State Marine Refuge and the waters (0-3 nautical miles) surrounding the following sites:

- Nihoa Island
- French Frigate Shoals
- Laysan Island
- Lisianski Island, Neva Shoal
- Pearl and Hermes Atoll
- Kure Atoll

The activities covered under this permit would occur between August 1, 2011 and July 31, 2012.

The proposed activities are largely a renewal of work previously permitted and conducted in the Monument. New activities in this application include the request to use a new anti-helminthic drug, Profender® Topical Solution (Bayer, Inc.), and the use of shoreline captive care pens within the Mounument.

INTENDED ACTIVITIES:

The applicant proposes efforts to help increase juvenile monk seal survival in the Northwestern Hawaiian Islands. These activities include

1. Feeding and treating prematurely weaned and other undernourished seals in a captive facility
2. Treating weaned/juvenile seals to decrease parasite loads

These activities focus on direct interventions with juvenile seals to improve their survival and thus better position the monk seal population for recovery in the future. Based on the applicant's past experience, scientific review, and detailed consultations with external specialists, these activities are among the general approaches identified as the interventions most likely to be successful.

Captive Feeding Program: The Hawaiian monk seal program would collect, as appropriate, juvenile seals (0-3 yrs old) to feed, treat, and protect in captivity. Selected seals would be those that are prematurely weaned, undernourished twins, or in such a condition that would otherwise perish.

Seals would be cared for in shore pens or transported to the Ford Island Research Facility in Honolulu and/or the NELHA monk seal rehabilitation center with the intent to release them back to their natal site or Nihoa Island. This is dependent on these facilities coming on-line. If that does not occur, animals would not be brought back to Honolulu. See Question #1 on page 4 of this submittal for detailed description of proposed shore pens.

Worming Trial: Monk seals are known to host a variety of gastrointestinal parasites, and it has been noted that young seals infected with *Diphyllbothrium* spp. (tape worms) tend to be in poorer body condition than those uninfected. While parasites are likely not a primary cause of mortality in monk seals, they may further compromise animals already in ill health due to food limitation, thereby increasing their likelihood of dying.

The applicant proposes to conduct a study to evaluate the efficacy of anti-helminth treatment as a method to improve juvenile survival. This study would focus on seals at Laysan, Lisianski, and French Frigate Shoals. The objective would be to include all available candidate seals in the study, which are likely to be a maximum of 41, 29, and 47 seals on each island respectively. Candidate seals are those that fall in the target age class of 0-2 years.

In order to detect and describe the effects of the treatment, the study may be conducted at multiple sites and with multiple anti-helminth medications and routes of administration (as listed above). Laysan Island will serve as one of the study sites because there is a relatively large number of pups born annually and apparently a minimum of mortality factors other than food limitation (e.g., predation) to confound the results. Also, because it is a single island, all animals on the beach on any given day are available for treatment and observation (as opposed to the greater logistic difficulties at multi-islet atolls). Additional study sites may include Lisianski Island and French Frigate Shoals. Lisianski is similar to Laysan in terms of known mortality causes and physiography. FFS may serve as an additional site if funding and logistics prove favorable to extending the study.

All study subjects will be captured by hand and net, feces collected for subsequent determination of parasite burden/presence (voided feces or fecal sample collected via fecal loop or digital extraction; stored in 10 % formalin), measured (axillary girth and weight), tagged if necessary, and given a dose of a cestodicide and/or a nematodicide. The cestodicide will be one of the following: Praziquantel oral (Droncit, Bayer 5-10 mg/kg), injectable (Praziquantel injectable, Bayer, 5-10 mg/kg) or if approved topical (Profender, 12-30 mg/kg). The nematocide will be

one of the following: oral Fenbendazole (Pancur, 10-50mg/kg) or injectable ivermectin (Ivomec 0.2 mg/kg) or if approved topical emodepside (Profender, 3mg-7.5 mg/kg). The drug Profender contains both a cestocide and a nematocide in one compound. Seals would be recaptured at periodic intervals for morphological assessment (weight and measurements) and treatments, up to 8 times per year. Control seals would be handled and sampled in the same manner as treatment seals, but would only receive saline solution.

The Applicant may attempt to re-deworm all treatment seals at approximately 3-16 week intervals or during each subsequent field season. This serves to clear both the adult worms that survived the previous treatments (or acquired thereafter), as well as migrating larva that matured after the previous treatment. As with the initial treatment, control seals will be handled and measured in the same manner as treatment seals. Visual assessment of condition will be recorded on an ongoing basis throughout the study, using standard MMRP subjective body condition scoring (med/thin/emaciated with +/- designations) and scat samples will be collected and preserved for detection of parasites.

All interaction and take of Hawaiian monk seals would be in accordance with procedures delineated in permits issued by the NMFS Office of Protected Resources.

These activities would determine effective methods to aid in the recovery of endangered Hawaiian monk seals and thus maintain biodiversity within the Monument. As such, the activities directly support the Monument Management Plan's action plan 3.2.1 – Threatened and Endangered Species (through strategy TES-1: Support activities that advance recovery of the Hawaiian monk seal).

The activities described above may require the following regulated activities to occur in State waters:

☒ Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging any living or nonliving monument resource

☒ Anchoring a vessel

#### REVIEW PROCESS:

The permit application was sent out for review and comment to the following scientific and cultural entities: Hawaii Division of Aquatic Resources, Hawaii Division of Forestry and Wildlife, Papahānaumokuākea Marine National Monument (NOAA/NOS), NOAA Pacific Islands Regional Office (NOAA-PIRO), United States Fish and Wildlife Service Hawaiian and Pacific Islands National Wildlife Refuge Complex Office, and the Office of Hawaiian Affairs (OHA). In addition, the permit application has been posted on the Monument Web site since March 10th, giving the public an opportunity to comment. The application was posted within 40 days of its receipt, in accordance with the Monument's Public Notification Policy.

**Comments received from the scientific community are summarized as follows:**

Scientific reviews support the acceptance of this application.

Concerns raised:

1. In the application shore pens are referred to under "Captive Feeding Program" and temporary holding facilities are also mentioned under "Release and post-release monitoring". Are these the same or separate types of containment units? Please provide more information on shore pens and temporary holding facilities (e.g. where will they be located, type of metal/material made of, and dimensions, etc.)

The Applicant states that the two holdings are the same.

He explains that the primary holding pens would measure approximately 30 ft x 80 ft but ultimately the dimensions will be established based on the beach topography and near shore bottom contour. Approximately 30% of the surface area would include water at least 24 inches deep at lowest tide. Approximately 70% of the pen would be dry resting area with sufficient area above the high water surge line. Construction of the pens at the primary site will comprise plastic and/or metal fencing material supported by 10-12 ft tall, 2" diameter steel pipe driven into the sand at approximately 6-8 ft apart in the water and "T posts" at 10-12 ft intervals on shore. Plastic ties would fix the fencing to the upright supports. Windbreaks would be erected along the fence near some dry resting area. Fence perimeters (in and out of water) would be monitored twice daily, and would be repaired or changed as necessary to prevent escape or injurious entrapment.

Location of pens would be dependent on the island, season, local conditions and number of seals to be returned at one time.

2. Please provide a detailed plan for returning captive animals back to the NWHI.

The Applicant points out that as was done with the Midway twin juvenile seals in 2006, any seals under captive care would be returned as soon as it is advised by the attending veterinarian, the individual has passed a disease screening and suitable transport back to their natal site is available. The Applicant would endeavor to release seals via a soft release program, using shoreline pens, continued monitoring, and supplemental feeding, as well as medical care if necessary. The specifics of this release program would depend on the size, health, stress response of the seal, the number of days it was in captivity and the cause for its being taken into captivity, the season it is returned to its natal site and local conditions, as well as staff availability.

Flexibility in the release program is necessary to ensure the best chances of survival upon release. For example, a seal that is released as a younger juvenile may need more supervision upon release than an older, more robust seal. A larger juvenile may need a larger shore pen to mitigate the chance of a stress response developing. A seal that takes a long time to learn to free feed might need a longer period of monitoring and supplemental feeding in a shore pen prior to complete release.

The Applicant intendeds to return seals back to their natal sites, with the following exceptions: 1) extenuating circumstances exist, such as an unusual mortality event is occurring at the natal site at that time, or 2) the natal site is Midway. Juvenile survival has been abysmal at Midway, thus

return there would be akin to a death sentence; therefore, a Midway juvenile brought into captive care would be returned to its natal island complex, likely Pearl and Hermes.

3. Will seals being relocated to Nihoa be released at other places besides the main haul out beach?

The Applicant points out that seals would be released from small boat off shore, but as close to the shore break as possible. The seals would be oriented toward the beach (main haul out area) and surrounding ledge. The objective is to have the seals get on land, rather than swim in the opposite direction toward deeper seas.

4. The application mentions that instruments will be deployed on seals. What types of instruments are being proposing to deploy and on how many seals?

The Applicant states that seals would be outfitted with Wildlife Computers spot 5 location only satellite tags and/or mark 10 GPS satellite tags.

**Comments received from the Native Hawaiian community are summarized as follows:**

Cultural reviews support the acceptance of this application.

**Comments received from the public are summarized as follows:**

No comments were received from the public on this application.

**Additional reviews and permit history:**

Are there other relevant/necessary permits or environmental reviews that have or will be issued with regard to this project? (e.g. MMPA, ESA, EA) Yes ☒ No ☐

If so, please list or explain:

- All renewal activities are currently authorized under Scientific Research and Enhancement Permit No. 10137-04, issued by the Office of Protected Resources, National Marine Fisheries Service. The use of the new drug, Profender ® Topical Solution (Bayer, Inc.) is pending a new ESA permit.
- The use of the shoreline pens within the Mounument is pending Section 7 ESA consultation with USFWS. Impacts of the shoreline pens in relation to Short-tailed Albatross, *Phoebastria albatrus*, and Laysan Duck, *Anas laysanensis*, is being investigated.
- Environmental Assessment on Issuance of a Permit for Field Research and Enhancement Activities on the Endangered Hawaiian Monk Seal resulted in a FONSI.
- The Department has made an exemption determination for this permit in accordance chapter 343, HRS, and Chapter 11-200, HAR. See Attachment ("DECLARATION OF EXEMPTION FROM THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT UNDER THE AUTHORITY OF CHAPTER 343, HRS AND CHAPTER 11-200 HAR, FOR PAPAĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT RESEARCH PERMIT TO CHARLES LITTNAN, NOAA FISHERIES, PACIFIC ISLANDS FISHERIES SCIENCE CENTER, FOR ACCESS TO STATE WATERS TO CONDUCT JUVENILE HAWAIIAN MONK SEAL SURVIVAL-ENHANCEMENT ACTIVITIES UNDER PERMIT PMNM-2011-033")

Has Applicant been granted a permit from the State in the past? Yes ☒ No ☐

If so, please summarize past permits:

- The applicant was granted permits DLNR/NWHI/06R004, PMNM-2007-032, PMNM-2008-046, PMNM-2009-044, PMNM-2010-038, and PMNM-2010-055 to conduct similar work in 2006 through 2010.

Have there been any a) violations: Yes ☐ No ☒  
b) Late/incomplete post-activity reports: Yes ☐ No ☒

Are there any other relevant concerns from previous permits? Yes ☐ No ☒

STAFF OPINION:

DAR staff is of the opinion that Applicant has properly demonstrated valid justifications for his application and should be allowed to enter the NWHI State waters and to conduct the activities therein as specified in the application with certain special instructions and conditions, which are in addition to the Papahānaumokuākea Marine National Monument Research Permit General Conditions. All suggested special conditions have been vetted through the legal counsel of the Co-Trustee agencies (see Recommendation section).

MONUMENT MANAGEMENT BOARD OPINION:

The MMB is of the opinion that the Applicant has met the findings of Presidential Proclamation 8031 and this activity may be conducted subject to completion of all compliance requirements. The MMB concurs with the special conditions recommended by DAR staff.

RECOMMENDATION:

Based on the attached proposed declaration of exemption prepared by the department after consultation with and advice of those having jurisdiction and expertise for the proposed permit actions:

1. That the Board declare that the actions which are anticipated to be undertaken under this permit will have little or no significant effect on the environment and is therefore exempt from the preparation of an environmental assessment.
2. Upon the finding and adoption of the department's analysis by the Board, that the Board delegate and authorize the Chairperson to sign the declaration of exemption for purposes of recordkeeping requirements of chapter 343, HRS, and chapter 11-200, HAR.
3. That the Board authorize and approve a Research Permit to Dr. Charles Littnan, Pacific Islands Fisheries Science Center, with the following special conditions:

- a. This permit is not to be used for nor does it authorize the sale of collected organisms. Under this permit, the authorized activities must be for noncommercial purposes not involving the use or sale of any organism, by-products, or materials collected within the Monument for obtaining patent or intellectual property rights.
- b. The permittee may not convey, transfer, or distribute, in any fashion (including, but not limited to, selling, trading, giving, or loaning) any coral, live rock, or organism collected under this permit without the express written permission of the Co-Trustees.
- c. To prevent introduction of disease or the unintended transport of live organisms, the permittee must comply with the disease and transport protocols attached to this permit.
- d. Tenders and small vessels must be equipped with engines that meet EPA emissions requirements.
- e. Refueling of tenders and all small vessels must be done at the support ships and outside the confines of lagoons or near-shore waters in the State Marine Refuge
- f. No fishing is allowed in State Waters except as authorized under State law for subsistence, traditional and customary practices by Native Hawaiians.

Respectfully submitted,



Administrator

APPROVED FOR SUBMITTAL



William J. Aila, Jr.  
Chairperson





**Papahānaumokuākea Marine National Monument  
RESEARCH Permit Application**

***NOTE: This Permit Application (and associated Instructions) are to propose activities to be conducted in the Papahānaumokuākea Marine National Monument. The Co-Trustees are required to determine that issuing the requested permit is compatible with the findings of Presidential Proclamation 8031. Within this Application, provide all information that you believe will assist the Co-Trustees in determining how your proposed activities are compatible with the conservation and management of the natural, historic, and cultural resources of the Papahānaumokuākea Marine National Monument (Monument).***

**ADDITIONAL IMPORTANT INFORMATION:**

- Any or all of the information within this application may be posted to the Monument website informing the public on projects proposed to occur in the Monument.
- In addition to the permit application, the Applicant must either download the Monument Compliance Information Sheet from the Monument website OR request a hard copy from the Monument Permit Coordinator (contact information below). The Monument Compliance Information Sheet must be submitted to the Monument Permit Coordinator after initial application consultation.
- Issuance of a Monument permit is dependent upon the completion and review of the application and Compliance Information Sheet.

**INCOMPLETE APPLICATIONS WILL NOT BE CONSIDERED**

Send Permit Applications to:

Papahānaumokuākea Marine National Monument Permit Coordinator

6600 Kalaniana'ole Hwy. # 300

Honolulu, HI 96825

nwhipermit@noaa.gov

PHONE: (808) 397-2660 FAX: (808) 397-2662

**SUBMITTAL VIA ELECTRONIC MAIL IS PREFERRED BUT NOT REQUIRED. FOR  
ADDITIONAL SUBMITTAL INSTRUCTIONS, SEE THE LAST PAGE.**

**Papahānaumokuākea Marine National Monument  
Permit Application Cover Sheet**

This Permit Application Cover Sheet is intended to provide summary information and status to the public on permit applications for activities proposed to be conducted in the Papahānaumokuākea Marine National Monument. While a permit application has been received, it has not been fully reviewed nor approved by the Monument Management Board to date. The Monument permit process also ensures that all environmental reviews are conducted prior to the issuance of a Monument permit.

**Summary Information**

**Applicant Name:** Charles Littnan  
**Affiliation:** NOAA Fisheries

**Permit Category:** Research

**Proposed Activity Dates:** June 25, 2011- July 31, 2012

**Proposed Method of Entry (Vessel/Plane):** NOAA RV O.E. Sette, possibly a chartered vessel (e.g. the Searcher) or chartered airplane as necessary.

**Proposed Locations:** Kure Atoll, Midway Atoll, Pearl and Hermes Reef, Laysan, Lisianski, French Frigate Shoals, Nihoa

**Estimated number of individuals (including Applicant) to be covered under this permit:**  
10

**Estimated number of days in the Monument:** 15 weeks

**Description of proposed activities:** (complete these sentences):

a.) The proposed activity would...  
consist of efforts to help increase juvenile monk seal survival in the Northwestern Hawaiian Islands.

b.) To accomplish this activity we would ....  
undertake enhancement actions including: 1) feeding and treating prematurely weaned and other undernourished seals in a captive facility, 2) treating weaned/juveniles to decrease parasite loads.

c.) This activity would help the Monument by ...  
determining effective methods to aid in the recovery of endangered Hawaiian monk seal and thus maintain biodiversity within the Monument.

**Other information or background:**

**Section A - Applicant Information**

**1. Applicant**

Name (last, first, middle initial): Littnan, Charles L.

Title: Leader, Hawaiian Monk Seal Research Program  
Pacific Islands Fisheries Science Center, NOAA Fisheries

**1a. Intended field Principal Investigator (See instructions for more information):**

Charles L. Littnan  
Kathleen Gobush

**2. Mailing address (street/P.O. box, city, state, country, zip):**

[REDACTED]

Phone:

[REDACTED]

Fax:

Email:

[REDACTED]

For students, major professor's name, telephone and email address:

**3. Affiliation (institution/agency/organization directly related to the proposed project):**

Pacific Islands Fisheries Science Center/NOAA Fisheries/Department of Commerce

**4. Additional persons to be covered by permit. List all personnel roles and names (if known at time of application) here (e.g. John Doe, Research Diver; Jane Doe, Field Technician):**

Frances Gulland- Veterinarian  
Chad Yoshinaga- field researcher  
Jessie Lopez- field researcher  
Angie Kaufman- field researcher  
TBD veterinarian  
TBD field research staff

**Section B: Project Information**

**5a. Project location(s):**

<input checked="" type="checkbox"/> Nihoa Island	<input checked="" type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Necker Island (Mokumanamana)	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input checked="" type="checkbox"/> French Frigate Shoals	<input checked="" type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Gardner Pinnacles	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Maro Reef			
<input checked="" type="checkbox"/> Laysan Island	<input checked="" type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Lisianski Island, Neva Shoal	<input checked="" type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Pearl and Hermes Atoll	<input checked="" type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Midway Atoll	<input checked="" type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Kure Atoll	<input checked="" type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Other			

NOTE: There is a fee schedule for people visiting Midway Atoll National Wildlife Refuge via vessel and aircraft.

**Location Description:**

Location will be the sand beaches and near shore habits of all islands specified, including sand beaches of all islets within the atoll complexes of Kure Atoll, Midway Atoll, Pearl & Hermes Atoll, and French Frigate Shoals. Most of the effort, however, will take place in these habitats at French Frigate Shoals, Laysan Island, Lisianski Island, and Nihoa Island.

**5b. Check all applicable regulated activities proposed to be conducted in the Monument:**

- ☒ Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging any living or nonliving Monument resource
- ☐ Drilling into, dredging, or otherwise altering the submerged lands other than by anchoring a vessel; or constructing, placing, or abandoning any structure, material, or other matter on the submerged lands
- ☒ Anchoring a vessel
- ☐ Deserting a vessel aground, at anchor, or adrift
- ☐ Discharging or depositing any material or matter into the Monument
- ☐ Touching coral, living or dead
- ☐ Possessing fishing gear except when stowed and not available for immediate use during passage without interruption through the Monument
- ☐ Attracting any living Monument resource
- ☐ Sustenance fishing (Federal waters only, outside of Special Preservation Areas, Ecological Reserves and Special Management Areas)
- ☐ Subsistence fishing (State waters only)
- ☐ Swimming, snorkeling, or closed or open circuit SCUBA diving within any Special Preservation Area or Midway Atoll Special Management Area

**6 Purpose/Need/Scope *State purpose of proposed activities:***

The Hawaiian monk seal is on a path to extinction that is unlikely to be altered without human intervention. This application presents tools for improving the survival of young seals, an essential requirement for averting extinction.

The total abundance of Hawaiian monk seals in the Northwestern Hawaiian Islands (NWHI), has declined by 70 % since the late 1950s. Since then, the six main sub-populations have experienced everything from periods of promising growth to catastrophic setbacks. The causes of decline have varied over time and from place to place, but since the early 1990s the decline has been driven, in large part, by poor juvenile survival. Many of these young animals have failed to thrive, and only about 1 of every 5 live to reach maturity, a situation largely due to insufficient food availability. The age structure of the population is therefore now unfavorable for future growth and the total population will inevitably fall below 1,000 individuals in just a few years.

The decline will continue and the conservation challenge will intensify unless scientists and managers, working together, develop the means to improve juvenile survival. History teaches us that the monk seal will continue to face new and unforeseen challenges in the future, but after two decades of poor juvenile survival, it is clear that this problem must be addressed. Improving juvenile survival is one of four key activities highlighted in the new Recovery Plan for the Hawaiian monk seal, published by NOAA in the summer of 2007:

- Improving juvenile survival through direct intervention such as providing captive care and feeding;
- Mitigating mortality due to entanglement in marine debris;
- Reducing shark predation on seal pups; and
- Ensuring growth of the small Main Hawaiian Islands seal population.

All of these critical recovery activities are being pursued by NOAA and its partners. The work proposed here focuses on direct interventions with juvenile seals to improve their survival and thus better position the monk seal population for recovery in the future.

**7. Answer the Findings below by providing information that you believe will assist the Co-Trustees in determining how your proposed activities are compatible with the conservation and management of the natural, historic, and cultural resources of the Monument:**

The Findings are as follows:

- a. How can the activity be conducted with adequate safeguards for the cultural, natural and historic resources and ecological integrity of the Monument?

The ultimate goal of the work described here is to assist in the recovery of the Hawaiian monk seal, a goal that is consistent with Monument mandates. The research proposed herein is

compatible with the conservation and management goals of the Monument and minimizes disturbance to the NWHI ecosystem.

Our studies will be designed and executed so as to minimize impacts to the terrestrial and marine environment. For instance, on-island time will be limited to that required for animal capture, transport, and instrument deployment, during which all personnel will adhere to strict quarantine protocols as defined by USFWS. Movements will be confined to the immediate beach area to avoid potential disturbance to bird and plant life on the island interiors. After the final tag deployment or adequate monitoring period, NMFS monk seal researchers will arrange to return to the NOAA R/V Oscar Elton Sette or other vessel, thereby reducing any human disturbance to terrestrial habitats and species by returning early.

Native Hawaiians share a close link to the ocean, marine life, and islands within the monument and seek to maintain the living cultural resources found there. Hawaiian monk seals are one of the most threatened of these cultural and natural legacies. The work presented here is critical for the survival of this species into the future, and it is our intent to continue this work with respect and in partnership with the Native Hawaiian community. Accordingly, all scientists participating on these cruises will receive a Native Hawaiian cultural briefing before departure to the NWHI. In addition, the primary permittee, chief scientist, and other appropriate personnel look forward to consulting with the Office of Hawaiian Affairs (OHA) and the Monument's Native Hawaiian program coordinator on proper conduct while in the NWHI, on cultural sensitivities associated with the proposed activities and locations, and on the applicability of the results of this research to the role of OHA as one of the NWHI stakeholder agencies.

Instruments that may be deployed on seals include: wildlife computers spot 5 location only satellite tags and/or mark10 GPS satellite tags.

b. How will the activity be conducted in a manner compatible with the management direction of this proclamation, considering the extent to which the conduct of the activity may diminish or enhance Monument cultural, natural and historic resources, qualities, and ecological integrity, any indirect, secondary, or cumulative effects of the activity, and the duration of such effects? Please see 7a.

c. Is there a practicable alternative to conducting the activity within the Monument? If not, explain why your activities must be conducted in the Monument.  
The techniques proposed here to improve juvenile survival can only be applied to seals in the NWHI. This population, unlike seals in the MHI, is demonstrating a population decline and nutritionally stressed seals.

d. How does the end value of the activity outweigh its adverse impacts on Monument cultural, natural and historic resources, qualities, and ecological integrity?  
The potential gain from this project is the increased survival of juvenile monk seals in the rapidly dwindling NWHI population. This work if successful and applied on a broader scale in the future could slow or stop the population decline.

e. Explain how the duration of the activity is no longer than necessary to achieve its stated purpose.

All activities here are devised in a manner to minimize time in the field. Researchers will remain in the field for only the time necessary to handle, treat and monitor seals to a degree that ensures the success of the studies and actions proposed here. Most work proposed here is also intended to occur in conjunction with population assessment camps already in place.

f. Provide information demonstrating that you are qualified to conduct and complete the activity and mitigate any potential impacts resulting from its conduct.

The Hawaiian Monk Seal Research Program has been conducting research on this species for over two decades. All members participating on these studies have previous monk seal handling experience. The protocols and research plans presented for these studies have been reviewed and approved by a variety of experts including the Marine Mammal Commission, Hawaiian Monk Seal Recovery Team, as well as other external specialists.

g. Provide information demonstrating that you have adequate financial resources available to conduct and complete the activity and mitigate any potential impacts resulting from its conduct. All research/enhancement activities are supported by NOAA Fisheries funding and primarily with the use of NOAA research vessels.

h. Explain how your methods and procedures are appropriate to achieve the proposed activity's goals in relation to their impacts to Monument cultural, natural and historic resources, qualities, and ecological integrity.

All participating staff are educated and trained to respect all cultural, natural and historic resources in the Monument. Our first and primary objective is "Do no harm". See section 7a above for details.

i. Has your vessel has been outfitted with a mobile transceiver unit approved by OLE and complies with the requirements of Presidential Proclamation 8031?

Yes

j. Demonstrate that there are no other factors that would make the issuance of a permit for the activity inappropriate.

There are no factors, such as other permit violations, that should prevent the issuance of this permit. All activities are inline with Hawaiian Monk Seal Recovery Plan and relevant sections of the Monument Management Plan.

#### **8. Procedures/Methods:**

A range of prospective approaches for increasing juvenile survival have been identified, including:

- Bringing young animals into captivity for feeding and veterinary care, followed by release back into the wild
- Treatment of free-ranging young animals to reduce parasite loads

Based on past experience, scientific review, and detailed consultations with external specialists, these two general approaches have been identified as the interventions most likely to be successful. Some latitude is required in the application of these interventions because at any given time, the optimal approach will depend on a number of factors such as the relative survival among the different sites, the logistics of moving animals, the availability of favorable release sites and so on.

### Captive Feeding Program

The Hawaiian monk seal program will collect, as appropriate, juvenile seals (0-3 years old) to feed, treat, and protect in captivity. Seals selected for this work will be those that are prematurely weaned, undernourished twins, or otherwise in a condition that without captive care and supplemental feeding will perish. Seals will be cared for in shore pens (see shore pen description below) or transported to and cared in the main Hawaiian Islands with the intent to release them back at their natal site in the NWHI. Captive care operations will be dependent on the Ford Island Facility and/or the NELHA monk seal rehabilitation center coming on-line in 2011.

#### On-site operations.

Field operations will be needed to assess, capture, and hold animals that would benefit from interventions to improve their survival. Assessment of individual seals is a routine element of ongoing annual studies. Capturing seals is more complicated because juvenile animals, in particular, may be absent from the islands for weeks at a time. Therefore, on-site holding is almost always required because capture cannot be reliably timed to coincide with the arrival and departure of a transport vessel or aircraft (see description of shore pen below).

#### Transport of animals from NWHI to MHI and return.

As much as possible, captive care operations will be supported by existing vessel and aircraft activity associated with establishing and retrieving annual field camps. In the past, the U.S. Coast Guard, U.S. Navy, and U.S. Air Force have provided additional assistance opportunistically, and similar arrangements will be sought to minimize transportation costs. In spite of such welcome help, additional chartering of both vessels and aircraft may be necessary.

#### Release and post-release monitoring.

Releasing animals may require temporary holding facilities if a "soft release" method (i.e., gradual introduction to the release site) is used. The primary holding pens will measure approximately 30 ft x 80 ft but ultimately the dimensions will be established based on the beach topography and near shore bottom contour. Approximately 30% of the surface area will include water at least 24 inches deep at lowest tide. Approximately 70% of the pen would be dry resting area with sufficient area above the high water surge line. Construction of the pens at the primary site will comprise plastic and/or metal fencing material supported by 10-12 ft tall, 2" diameter steel pipe driven into the sand at approximately 6-8 ft apart in the water and "T posts" at 10-12 ft intervals on shore. Plastic ties will fix the fencing to the upright supports. Windbreaks will be erected along the fence near some dry resting area. Fence perimeters (in and out of water) will be monitored twice daily, and will be repaired or changed as necessary to prevent escape or



injurious entrapment. Location of pens will be dependent on the island, season, local conditions and number of seals to be returned at one time.

Staff will be needed to provide care at the release site, as well as to release and monitor the animals' acclimation. Monitoring will involve observational assessment to gauge animal condition and health, as well as tracking movement and foraging patterns using well-established tagging technology. In many, if not most, cases, releases will be timed to take advantage of personnel, equipment, and support from concurrent field studies.

As was done with the Midway twin juvenile seals in 2006, any seals under captive care will be returned as soon as it is advised by the attending veterinarian, the individual has passed a disease screening and suitable transport back to their natal site is available. We will endeavor to release seals via a soft release program, using shoreline pens, continued monitoring, and supplemental feeding, as well as medical care if necessary. The specifics of this release program will depend on the size, health, stress response of the seal, the number of days it was in captivity and the cause for its being taken into captivity, the season it is returned to its natal site and local conditions, as well as staff availability. Flexibility in the release program is necessary to ensure the best chances of survival upon release. For example, a seal that is released as a younger juvenile may need more supervision upon release than an older, more robust seal. A larger juvenile may need a larger shore pen to mitigate the chance of a stress response developing. A seal that takes a long time to learn to free feed might need a longer period of monitoring and supplemental feeding in a shore pen prior to complete release.

We intended to return seals back to their natal sites, with the following exceptions: 1) extenuating circumstances exist, such as an unusual mortality event is occurring at the natal site at that time, or 2) the natal site is Midway. Juvenile survival has been abysmal at Midway, thus return their would be akin to a death sentence; therefore, a Midway juvenile brought into captive care would be returned to its natal island complex, likely Pearl and Hermes.

For the special case of Nihoa, that has limited beach and beach access, seals would be released from small boat off shore, but as close to the shore break as possible. The seals will be oriented toward the beach (main haul out area) and surrounding ledge. The objective will be to have the seals get on land, rather than swim in the opposite direction toward deeper seas.

#### Worming Objective:

Hawaiian monk seal abundance is declining due to low juvenile survival, which appears to be associated with food limitation and poor body condition. Monk seals are known to host a variety of gastrointestinal parasites (Dailey et al. 1988, 2004). Reif et al. (2006) reported that young seals infected with *Diphyllbothrium* spp. (tape worms) tended to be in poorer body condition than those uninfected, and proposed that "intervention strategies to reduce the gastrointestinal helminth burdens in immature animals should be considered as a conservation measure." Our study is designed to test the hypothesis that temporarily relieving compromised young monk seals of their parasite burden will improve their chances of survival in a food limited environment. Specifically we will test the potential for enhanced survival of seals, aged young-

of-the-year to 2-years old, following treatment to reduce gastro-intestinal parasite load.

#### Experimental design and protocols:

##### Selection of subject animals (pre-treatment assessment)

The study will focus on NWHI juvenile seals up to two years of age which corresponds to the age range exhibiting the lowest survival and which is primarily responsible for constraining population growth and recovery. Sample sizes will be limited by the number of juveniles available at each study site which match the specified selection criteria (see below), or by the capability of the field teams to identify, capture and treat the seals safely in the allotted time. The objective will be to include all available candidate seals in the study. Based on cohort numbers over the last 5 years, the maximum number of seals in each age class (0-2) that may be included in the study each year are: French Frigate Shoals: 47 seals; Laysan Island: 41 seals; and Lisianski Island: 29 seals. Standard population surveys will be conducted to identify potential study subjects. We will attempt to treat all animals that fall into the target age class. If the opportunity to treat seals is limited in certain cases and in order to test the hypothesis above, we will prioritize sampling for animals that are most likely to be compromised by nutritional stress and parasites, but which are not moribund and unlikely to survive under any circumstances.

Pre-treatment assessments of health status and body condition will be based on visual inspection, supplemented by examination of digital photos. The monk seal program employs a suite of body condition indices to score seals as good/medium/thin/emaciated. These indices rely primarily on the relative visibility of: “pelvic girdle” (ischium, greater trochanter of the femur, ilium), ribs, point of the shoulder (scapulohumoral joint), peanut head (circumferential loss of mass around the neck and cranial shoulders), and vertebrae (dorsal spinous processes and transverse processes). Seals scored as “emaciated” often disappear from the population soon thereafter or before the start of the subsequent field season, and if it is felt that they are too compromised to treat without severe risk of mortality they will be excluded from this study.

##### Controls

Seals will be assigned to either a treatment or control group using either random assignment. The objective will be to obtain an equivalent number of seals in both treatment and control groups, matched as closely as possible in age, sex, body condition, and location. Sex matching is important because sex has been recognized to influence worm burden and its effects on the host in other mammals (Wilson and Moore 2002).

##### Location and Timing

Historically, juvenile survival has varied markedly both temporally and spatially (Baker and Thompson 2006). Further, the pattern of the relationship between pup condition (weaning girth) and survival also varies annually, apparently due to environmental stochasticity (Baker et al. 2007), predation intensity and other factors (Baker 2008).

This study has been conducted at Laysan Island since August 2009. To date, 43 juveniles seals have been apart of the study. Results analyzed thus far have been equivocal but show promise. For example, seals treated with injectable Praziquantel gained more mass on a daily basis in the

period of March to May (2010) as compared to control seals; however at other time periods throughout the year, the two groups of seals were indistinguishable. In order to conclusively test our hypotheses, we aim to conduct additional trials on additional juveniles seals, possibly using different routes (i.e. topical versus oral and injectable), dosages (because drug dose is often route-dependent) and possibly additional drugs (i.e. nematodocides).

Drugs and routes tried have included oral Fenbendazole, a nematodocide (10-50 mg/kg), and oral and injectable Praziquantel, a cestodocide (5 mg/kg). Approval for use of injectable ivermectin, a nematodocide (0.02 mg/kg) has been granted but we have yet to use it. We may try it in 2011 as well as a new anti-helminthic drug, just now commercially available called Profender® Topical Solution (Bayer, Inc.). Profender® combines emodepside, a nematodocide, (suggested dose 3 mg/kg but may be used at a dosage approximately 3 times as high to be effective in pinnipeds) and praziquantel, a cestodocide (suggested dose 12 mg/kg but may be used at a dosage approximately 3 times as high to be effective in pinnipeds) a highly effective treatment for roundworms, tapeworms and hookworms in cats.

For 2011, in order to detect and describe the effects of the treatment, the study may be conducted at multiple sites and with multiple anti-helminth medications and routes of administration (as listed above). Laysan Island will serve as one of the study sites because there is a relatively large number of pups born annually and apparently a minimum of mortality factors other than food limitation (e.g., predation) to confound the results. Also, because it is a single island, all animals on the beach on any given day are available for treatment and observation (as opposed to the greater logistic difficulties at multi-islet atolls). Additional study sites may include Lisianski Island and French Frigate Shoals. Lisianski is similar to Laysan in terms of known mortality causes and physiography. FFS may serve as an additional site if funding and logistics prove favorable to extending the study.

Seals will be handled for treatment or assessment (sampling or weighing) up to eight times each year. Seals age 1-2 will be treated during any of these times. Pups of the year will be treated once they have been weaned for at least 120 days. The constraint is based on results from epidemiological sampling conducted 1998-2000 (n=54 for weaned pups), which indicated that all pups sampled more than 120 days post-weaning (n=15) tested positive for either cestodes or nematodes (Appendix A: Figure 1). Conversely, only one pup sampled at less than 75 days post-weaning (n=39) tested positive.

#### Treatment and Assessment Protocols

All study subjects will be captured by hand and net, feces collected for subsequent determination of parasite burden/presence (voided feces or fecal sample collected via fecal loop or digital extraction; stored in 10 % formalin), measured (axillary girth and weight), tagged if necessary, and given a dose of a cestodocide and/or a nematodocide. The cestodocide will be one of the following: Praziquantel oral (Droncit, Bayer 5-10 mg/kg), injectable (Praziquantel injectable, Bayer, 5-10 mg/kg) or topical (Profender, 12-30 mg/kg). The nematocide will be one of the following: oral Fenbendazole (Pancur, 10-50mg/kg) or injectable ivermectin (Ivomec 0.2 mg/kg) or topical emodepside (Profender, 3mg-7.5 mg/kg). The drug Profender contains both a cestodocide and a nematocide in one compound.

All anti-helminth medications will be administered in accordance with the protocols developed for elephant seals and California sea lions at The Marine Mammal Center, applied to monk seals during captive rearing studies at Midway Atoll in 2006-7 and captive monk seals at Sea World in San Antonio, Texas and Longs Marine Laboratory, Santa Cruz, California. Control seals will be handled and sampled in the same manner as treatment seals. No sedation will be required for either treatment or control seals. However, the study may be facilitated by conducting it in conjunction with other research involving capture and handling of juvenile monk seals (e.g., foraging and health screen studies), in which case treatments may involve sedation, biomedical sampling, and instrumentation. Post treatment condition and fecal egg pretense and/or counts will be determined by observing the seals, and, when possible, collecting multiple voided fecal samples from known individuals as part of our standard patrols.

We may attempt to re-deworm all treatment seals at approximately 3-16 week intervals or during each subsequent field season. Treatment interval will be dictated by funding, logistics and the medication route tested; for example when testing the topical drug Profender, retreatment may occur on a shorter time interval because handling required is expected to be minimal for drug application. The additional treatments serve to clear both the adult worms that survived the previous treatments (or acquired thereafter), as well as migrating larva that matured after the previous treatment. As with the initial treatment, control seals will be handled and measured in the same manner as treatment seals. We will attempt to collect fecal samples from all handled seals. Visual assessment of condition will be recorded on an ongoing basis throughout the study, using standard MMRP subjective body condition scoring (med/thin/emaciated with +/- designations) and scat samples will be collected and preserved for detection of parasites. Subsequent survival will be determined through visual re-identification during regular monk seal population assessment field research, (typically June through August), supplemented by observations made during the additional field sessions for this or other projects. The duration of the survival period will be dependent upon the timing of the initial field phase of the study relative to the assessment field season. That is, at those sites lacking a constant field presence, seals that are not observed in the subsequent field session may have died at anytime during the interim from the previous observation. The resolution of the survival assessment is therefore limited by the frequency of the field presence.

#### Evaluation:

The evaluation of treatment effects will address two questions:

1. Does treatment of young seals improve their physiological condition (weight, body condition ranking, and parasite load or presence)?
2. Is improved physiological condition (#1) sufficient to increase survival under favorable environmental conditions?

The statistical analysis may consist of modeling survival (either with capture-recapture or logistic regression) of treatment and control animals to determine whether there is evidence that anti-helminth treatment improves survival if there is an apparent difference in survival (as tested initially with a Fisher's exact test). Other factors that influence survival (predation or other) will

be treated as covariates. However, our ability to identify and quantify the underlying environmental factors that drive juvenile survival rates is limited.

Although survival is the ultimate measure, it is a function of a number of factors (physiological condition, environmental conditions, shark predation, entanglement, and other), and worming may not be sufficient to boost survival in all cases. Under severe environmental conditions, animals might show a temporary or seasonal improvement in condition but ultimately not survival. However, that same increase will be made to measure treatment and control seals between each treatment session under more moderate environmental conditions. Consequently, another important analysis will be a comparison of body condition change in treated versus control animals. This assessment may use both quantitative measures (primarily mass) and qualitative measures (MMRP categorical body condition ranking). It should be noted that we might observe different patterns in the effect of worming treatment on seals depending on their life stage. Young of the year are likely to lose weight regardless of treatment as they lose their excess blubber and learn to forage, in this case we would hope that treated seals would show a less precipitous decline in mass and condition than non-treated individuals. Older juvenile seals would be expected to do well to maintain condition and demonstrate some weight gain.

Another key analysis is the comparison of parasite loads in control versus treatment seals. Parasite load will be determined from fecal egg presence or count data, treated as a categorical covariate. Fecal egg counts are not an exact measure of the number of worms present in the stomach and intestine of live animals, as egg production by female worms is influenced by host immunity and worm burden (Gulland and Fox 1992, Zhong and Dobson 1996; Aumont et al. 2003). Furthermore, egg release by tapeworms is intermittent (Reif et al. 2006), whereas nematode eggs are usually randomly scattered in the stools, even if introduced into the fecal stream above the lower colon at irregular intervals as much as several hours apart (Martin 1965; LeJambre et al. 2007). Evaluation of a variety of gastrointestinal nematodes in a number of species has shown that despite variability in fecundity, the fecal egg count is sufficiently repeatable within an individual to allow its use as a quantitative measure of worm burden, and to allow comparisons between individuals (Coltman et al. 1999). Reduction of fecal egg count is the most widely used method to assess the efficacy of anthelmintics against gastrointestinal strongyles (Cabaret and Berrag, 2004). Thus we will use the fecal egg presence and count to evaluate worm burden. Parasite load in any dead animals collected during the study will be determined through an absolute worm count.

Additional descriptions of anchoring:

Anchoring a vessel: small boats may be anchored at any location according to standard practices included in the monk seal field camp permitted activities in order to facilitate transport of seals as necessary. This includes anchoring only in sandy substrate and taking steps to avoid damaging of hard substrates (especially coral) with the anchor or chain.

**NOTE: If land or marine archeological activities are involved, contact the Monument Permit Coordinator at the address on the general application form before proceeding, as a customized application will be needed. For more information, contact the Monument office on the first page of this application.**

**9a. Collection of specimens - collecting activities (would apply to any activity): organisms or objects (List of species, if applicable, attach additional sheets if necessary):**

Common name:  
Hawaiian monk seal

Scientific name:  
*Monachus schauinslandi*

# & size of specimens:

**Captive Care**

An unknown number of seals, but likely less than 10, may be brought to the MHI for captive care. During this time they will be biomedically sampled multiple times to monitor their health and condition.

**Worming Trial**

Up to 90 juvenile seals (ages 4 months - 2 years) will be captured, sampled and treated for the parasite study. Of these 45 will be controls that will be sampled and 45 treatment seals will be sampled and treated with anti-helminth drugs. Up to 200 feces collected for subsequent determination of parasite burden (voided feces or fecal sample via fecal loop stored in 10 % formalin), Up to 200 measurements of morphometrics (axillary girth and dorsal standard length), 90 x 2 (per animal) blubber biopsies (approx. 0.6 cm diameter, 2-3 cm in length) may be collected, 90 blood samples (up to 90 mL) may be collected, 90 swabs x 5 orifices (anal, genital, mouth, nose, eye), 200 Scats opportunistically collected on beach, Up to 90 x 2 skin plugs from flipper tagging.

There is also the possibility of conducting necropsies on any dead seals found during research activities. The type and number of samples collected during necropsies varies depending on the condition of the carcass. A necropsy protocol that highlights the potential tissues that may be collected from dead monk seals can be provided upon request, though tissues could include: samples from all major organs, skin, muscle, blood, blubber, hair, bone and other.

Collection location:

**Captive Care**

Potentially any of the 6 main sub-populations in the NWHI as this an opportunistic effort.

**Worming Trial**

Lisianski Island, Laysan Island, French Frigate Shoals

☒ Whole Organism ☒ Partial Organism

**9b. What will be done with the specimens after the project has ended?**

Samples will be analyzed on a timely basis upon return to Honolulu. For example, in 2009-2010, fecal egg presence and counts were conducted within 2 months of their return to Honolulu.

**9c. Will the organisms be kept alive after collection?** ☒ Yes ☐ No

- General site/location for collections:

Seals could be collected from any of the major breeding populations. They will be held in shore pens or brought to the MHI to be held in pools in a captive care facility.

- Is it an open or closed system? ☒ Open ☐ Closed

- Is there an outfall? ☒ Yes ☐ No

- Will these organisms be housed with other organisms? If so, what are the other organisms?  
They may be kept with other monk seals.

- Will organisms be released?

Yes

**10. If applicable, how will the collected samples or specimens be transported out of the Monument?**

All samples collected within the Monument will be transported out on the NOAA/RV OES, chartered vessel or airplane. Fecal samples will be stored in plastic-capped vials with a premeasured volume of SAF fixative, an aqueous solution of formaldehyde (10%), acetic acid and sodium acetate.

**11. Describe collaborative activities to share samples, reduce duplicative sampling, or duplicative research:**

Currently NOAA Fisheries is the only group researching Hawaiian monk seals eliminating duplicative research. The worming trial may share animals with foraging research to reduce human activity and the number of animals be utilized in monk seal research and conservation actions. However, we have several partners aiding us in the analysis of our samples and data. These include: Bishop Museum, Moss Landing Marine Lab, University of Hawaii Manoa and Hilo, UH Hawaii Institute of Marine Biology, Southwest Fisheries Science Center, Scripps Institute of Oceanography and Dalhousie University, Canada.

Data collected during this study will also be provided to the Monument to aid with their management objectives.

**12a. List all specialized gear and materials to be used in this activity:**

none

**12b. List all Hazardous Materials you propose to take to and use within the Monument:**

Up to 200 plastic-capped vials with a premeasured volume of SAF fixative, an aqueous solution of formaldehyde (10%), acetic acid and sodium acetate. Please note, technically speaking 10% formalin solutions are not considered a HAZMAT by US shipping regulations.

**13. Describe any fixed installations and instrumentation proposed to be set in the Monument:**

No permanent fixed installations will be set in the monument for this work.

**14. Provide a time line for sample analysis, data analysis, write-up and publication of information:**

Feces will be processed and logged within approximately two months of return to Honolulu. They will then be distributed to the appropriate lab for analysis. Any other samples related to captive care of seals should be analyzed within 6 months of collection depending on the workload of partner and contract laboratories. An important point to emphasize is that we do have partners in place to analyze samples and interpret resulting data.

Analysis of results of the first year of this study (August 2009 through October 2010) has been completed and a drafted manuscript is currently in internal review and set for submission for publication in a peer-reviewed journal thereafter. We expect that this additional year of tests on the efficacy of other routes of administration, dosages and medications to require at least an equal period of time, depending on results.

**15. List all Applicants' publications directly related to the proposed project:**

Baker, J. D.

2008. Variation in the relationship between offspring size and survival provides insight into causes of mortality in Hawaiian monk seals. *Endangered Species Research* 5:55-64.

Dierauf, L. A., and Gulland F. M. D.

2001. CRC Handbook of Marine Mammal Medicine. In Book CRC Handbook of Marine Mammal Medicine (Editor, ed.)^Eds.), p. 1019. CRC Press, City.

Gobush, K.S., J.D. Baker and F.M.D. Gulland.

(In preparation). The effectiveness of an anti-helminthic treatment, injectable Praziquantel, in improving the survival and condition of free-ranging juvenile Hawaiian monk seals.



With knowledge of the penalties for false or incomplete statements, as provided by 18 U.S.C. 1001, and for perjury, as provided by 18 U.S.C. 1621, I hereby certify to the best of my abilities under penalty of perjury of that the information I have provided on this application form is true and correct. I agree that the Co-Trustees may post this application in its entirety on the Internet. I understand that the Co-Trustees will consider deleting all information that I have identified as "confidential" prior to posting the application.

---

Signature

Date

**SEND ONE SIGNED APPLICATION VIA MAIL TO THE MONUMENT OFFICE  
BELOW:**

Papahānaumokuākea Marine National Monument Permit Coordinator  
6600 Kalaniana'ole Hwy. # 300  
Honolulu, HI 96825  
FAX: (808) 397-2662

**DID YOU INCLUDE THESE?**

- ☐ Applicant CV/Resume/Biography
- ☐ Intended field Principal Investigator CV/Resume/Biography
- ☐ Electronic and Hard Copy of Application with Signature
- ☐ Statement of information you wish to be kept confidential
- ☐ Material Safety Data Sheets for Hazardous Materials



## **Papahānaumokuākea Marine National Monument Compliance Information Sheet**

**1. Updated list of personnel to be covered by permit. List all personnel names and their roles here (e.g. John Doe, Diver; Jane Doe, Field Technician, Jerry Doe, Medical Assistant):**

Sarah Chinn, Field Biologist, Camp Leader  
Carrie MacAtee, Field Biologist  
Whitney Taylor, Field Biologist  
TBN veterinarian (small possibility, during cruises)  
TBN

**2. Specific Site Location(s): (Attach copies of specific collection locations):**

Deworming: will occur only on Laysan Island only and work will only be conducted on beach.

Locations of captive care activities are unknown at this time and pending care facilities on O'ahu.

**3. Other permits (list and attach documentation of all other related Federal or State permits):** NMFS Office of Protected Species to take Hawaiian monk seals for Scientific Research and Enhancement Activities 10137-03 has been provided to PMNM already can send additional copy if needed.

**3a. For each of the permits listed, identify any permit violations or any permit that was suspended, amended, modified or revoked for cause. Explain the circumstances surrounding the violation or permit suspension, amendment, modification or revocation.** None

**4. Funding sources (Attach copies of your budget, specific to proposed activities under this permit and include funding sources. See instructions for more information):** Federal Agency Funded

**5. Time frame:**

Activity start: June 25, 2011

Activity completion: June 24, 2012

Dates actively inside the Monument:

From: June 25, 2011

To: approximately until August 25, 2011

Describe any limiting factors in declaring specific dates of the proposed activity at the time of application: Captive care activities are unknown at this time and pending care facilities on O'ahu.

Personnel schedule in the Monument: as of the most current information: June 25, 2011 until August 25, 2011, however, staff are already in the Monument for seal Population Assessment via the Manager's Permit

**6. Indicate (with attached documentation) what insurance policies, bonding coverage, and/or financial resources are in place to pay for or reimburse the Monument trustees for the necessary search and rescue, evacuation, and/or removal of any or all persons covered by the permit from the Monument:**

As a U.S. Government agency, the project is self-insured. All personnel (contractors, state employees, and federal employees) are covered under workers' compensation.

**7. Check the appropriate box to indicate how personnel will enter the Monument:**

- ☒ Vessel  
☒ Aircraft

Provide Vessel and Aircraft information: Personnel and seals may be transported into/out of Monument on a variety of vessels: NOAA RV Oscar Elton Sette, M/V Searcher, M/V Kahana or others TBN (including potential Navy or Coast Guard support).

**8. The certifications/inspections (below) must be completed prior to departure for vessels (and associated tenders) entering the Monument. Fill in scheduled date (attach documentation):**

- ☐ Rodent free, Date:  
☐ Tender vessel, Date:  
☐ Ballast water, Date:  
☐ Gear/equipment, Date:  
☐ Hull inspection, Date:

**9. Vessel information (NOTE: if you are traveling aboard a National Oceanic and Atmospheric Administration vessel, skip this question):**

Vessel name:  
Vessel owner:  
Captain's name:  
IMO#:  
Vessel ID#:  
Flag:

Vessel type:  
Call sign:  
Embarkation port:  
Last port vessel will have been at prior to this embarkation:  
Length:  
Gross tonnage:  
Total ballast water capacity volume (m3):  
Total number of ballast water tanks on ship:  
Total fuel capacity:  
Total number of fuel tanks on ship:  
Marine Sanitation Device:  
Type:

**Vessel name: Oscar Elton Sette, information on file with Monument already**

**Vessel name: MV KAHANA**

Vessel owner: KAHANA TUG LLC

Captain's name: MARIO LUIS

IMO#: 8108042

Vessel ID#: 643471

Flag: USA

Vessel type: SINGLE HULL OFF SHORE SUPPLY VESSEL

Call sign: WDC7062

Embarkation port: HONOLULU

Last port vessel will have been at prior to this embarkation: PORT ALLEN KAUAI

Length: 185'

Gross tonnage: 260 GRT

Total ballast water capacity volume (m3): 520 m3

Total number of ballast water tanks on ship: 7

Total fuel capacity: 62008 GAL

Total number of fuel tanks on ship: 6

Marine Sanitation Device: YES

Type: TYPE II USCG APPROVED

**Vessel name: SEARCHER**

Explain in detail how you will comply with the regulations regarding discharge in the Monument. Describe in detail. If applicable, attach schematics of the vessel's discharge and treatment systems:

All overboard discharges are capable of being closed and the drains diverted to a dedicated holding tank that contains capacity to hold black and gray water for the duration of the cruise. The vessel can divert to outside the monument boundaries to empty the tank if necessary.

Other fuel/hazardous materials to be carried on board and amounts: Fuel will brought in, stored on vessel for small boat operations to capture and transport seals.

Provide proof of a National Oceanic and Atmospheric Administration (NOAA) Office of Law Enforcement-approved Vessel Monitoring System (VMS). Provide the name and contact information of the contractor responsible for installing the VMS system. Also describe VMS unit name and type:

Kahana:  
Thrane Sailor mini-C installed by Oceantronics  
VMS Email: [436900529@c.xantic.net](mailto:436900529@c.xantic.net)  
Inmarsat ID#: 436900529

Searcher  
VMS Email:  
Inmarsat ID#:

\* Individuals MUST ENSURE that a type-approved VMS unit is installed and that its automatic position reports are being properly received by the NOAA OLE system prior to the issuance of a permit. To make sure your VMS is properly configured for the NOAA OLE system, please contact NOAA OLE at (808) 203-2503 or (808) 203-2500.

\* PERMITS WILL NOT BE ISSUED TO INDIVIDUALS ENTERING THE MONUMENT VIA VESSEL UNTIL NOAA OLE HAS CONTACTED THE MONUMENT PERMIT COORDINATOR WITH A 'POSITIVE CHECK' READING.

#### **10. Tender information:**

On what workboats (tenders) will personnel, gear and materials be transported within the Monument? List the number of tenders/skiffs aboard and specific types of motors:  
KAHANA: One 35 ft aluminum landing craft with inboard twin diesel engines; One 7m RHIB with inboard diesel engine.

SEARCHER:

**Additional Information for Land Based Operations**

**11. Proposed movement of personnel, gear, materials, and, if applicable, samples:**

**12. Room and board requirements on island:**

**13. Work space needs:**

**DID YOU INCLUDE THESE?**

- ☐ Map(s) or GPS point(s) of Project Location(s), if applicable
- ☐ Funding Proposal(s)
- ☐ Funding and Award Documentation, if already received
- ☐ Documentation of Insurance, if already received
- ☐ Documentation of Inspections
- ☐ Documentation of all required Federal and State Permits or applications for permits







STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF AQUATIC RESOURCES  
1151 PUNCHBOWL STREET, ROOM 330  
HONOLULU, HAWAII 96813

WILLIAM J. AILA, JR.  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
  
GUY KAULUKUKUI  
FIRST DEPUTY  
  
WILLIAM M. TAM  
DEPUTY DIRECTOR - WATER  
  
AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
BUREAU OF CONVEYANCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
CONSERVATION AND COASTAL LANDS  
CONSERVATION AND RESOURCES ENFORCEMENT  
ENGINEERING  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
KAOHOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

June 9, 2011

TO: Division of Aquatic Resources File  
  
THROUGH: William J. Aila Jr., Chairperson  
  
FROM: Francis Oishi *FO*  
Division of Aquatic Resources

DECLARATION OF EXEMPTION FROM THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT  
UNDER THE AUTHORITY OF CHAPTER 343, HRS AND CHAPTER 11-200 HAR, FOR  
PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT RESEARCH PERMIT TO CHARLES  
LITTNAN, NOAA FISHERIES, PACIFIC ISLANDS FISHERIES SCIENCE CENTER, FOR ACCESS TO STATE  
WATERS TO CONDUCT JUVENILE HAWAIIAN MONK SEAL SURVIVAL-ENHANCEMENT ACTIVITIES  
UNDER PERMIT PMNM-2011-033

The following permitted activities are found to be exempted from preparation of an environmental assessment under the authority of Chapter 343, HRS and Chapter 11-200, HAR:

Project Title:

Papahānaumokuākea Marine National Monument Research Permit to Charles Littnan, NOAA Fisheries, Pacific Islands Fisheries Science Center, for Access to State Waters to Conduct Juvenile Hawaiian Monk Seal Survival-Enhancement Activities

Permit Number: PMNM-2011-033

Project Description:

The research permit application, as described below, would allow entry and activities to occur in Papahānaumokuākea Marine National Monument (Monument), including the NWHI State waters from August 1, 2011 through July 31, 2012.

This is an effort to help increase juvenile monk seal survival in the Northwestern Hawaiian Islands. Activities would include feeding and treating prematurely weaned and other undernourished seals in a captive facility, as well as treating weaned/juvenile seals with medication to decrease parasite loads.

The proposed activities are in direct support of the Monument Management Plan's priority management needs 3.2 – Conserving Wildlife and Habitats, through action plan 3.2.1 – Threatened and Endangered Species. This action plan includes a strategy to “support activities that advance recovery of the Hawaiian monk seal”.

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Activities to support conserving wildlife in the NWHI are addressed in the Monument Management Plan Environmental Assessment (December 2008) which resulted in a FONSI, or a finding of no significant impact. This EA specifically covers field activities, such as those being proposed, that will “increase juvenile survivorship through appropriate management tools, such as supplemental feeding through NOAA monk seal captive care programs” (PMNM MMP Vol 2, p.72). In addition, the “Environmental Assessment on Issuance of a Permit for Field Research and Enhancement Activities on the Endangered Hawaiian Monk Seal” resulted in a FONSI.

Consulted Parties:

The permit application was sent out for review and comment to the following scientific and cultural entities: Hawaii Division of Aquatic Resources, Hawaii Division of Forestry and Wildlife, Papahānaumokuākea Marine National Monument (NOAA/NOS), NOAA Pacific Islands Regional Office (NOAA-PIRO), United States Fish and Wildlife Service Hawaiian and Pacific Islands National Wildlife Refuge Complex Office, and the Office of Hawaiian Affairs (OHA). In addition, the permit application has been posted on the Monument Web site since March 10th, giving the public an opportunity to comment. The application was posted within 40 days of its receipt, in accordance with the Monument’s Public Notification Policy.

Exemption Determination:

After reviewing HAR § 11-200-8, including the criteria used to determine significance under HAR § 11-200-12, DLNR has concluded that the activities under this permit would have minimal or no significant effect on the environment and that issuance of the permit is categorically exempt from the requirement to prepare an environmental assessment based on the following analysis:

1. All activities associated with this permit, including captive care and deworming activities, have been evaluated as a single action. As a preliminary matter, multiple or phased actions, such as when a group of actions are part of a larger undertaking, or when an individual project is precedent to or represents a commitment to a larger project, must be grouped together and evaluated as a single action. HAR § 11-200-7. Since this permit involves an activity that is precedent to a later planned activity, i.e. the continuation of juvenile monk seal survival-enhancement activities, the categorical exemption determination here will treat all planned activities as a single action.

2. The Exemption Class for Scientific Research with no Serious or Major Environmental Disturbance Appears to Apply. Chapter 343, HRS, and § 11-200-8, HAR, provide for a list of classes of actions exempt from environmental assessment requirements. HAR §11-200-8.A.5. exempts the class of actions which involve “basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource.” This exemption class has been interpreted to include “wildlife surveys...recording, sampling” as well as “housing, care, feeding, veterinarian examination, breeding, cross fostering...of native species (including those which are rare, threatened, or endangered)”, such as those being proposed.

The proposed activities appear to fall squarely under the exemption class #5, exempt items #2 and #4 as described under the division of Forestry and Wildlife exemption list published on June 12, 2008. As discussed below, no significant disturbance to any environmental resource is anticipated in the sampling of Monument resources. Thus, so long as the below considerations are met, an exemption class should include the action now contemplated.

3. Cumulative Impacts of Actions in the Same Place and Impacts with Respect to the Potentially Particularly Sensitive Environment Will Not be Significant. Even where a categorical exemption appears to include a proposed action, the action cannot be declared exempt if “the cumulative impact of planned successive actions in the same place, over time, is significant, or when an action that is normally insignificant in its impact on the environment may be significant in a particularly sensitive environment.” HAR § 11-200-8.B. To gauge whether a significant impact or effect is probable, an exempting agency must consider every phase of a proposed action, any expected primary and secondary consequences, the long-term and short-term effects of the action, the overall and cumulative effect of the action, and the sum effects of an action on the quality of the environment. HAR § 11-200-12. Examples of actions which commonly have a significant effect on the environment are listed under HAR § 11-200-12.

The activities would be a continuation of work previously conducted by the applicant, which involved captive care and deworming activities to enhance juvenile monk seal survival. The applicant received a permit to conduct similar work in 2008, 2009, and 2010, and is likely to request future permits to continue this work. No deleterious effects have resulted from these activities in the past. No other studies of this type have been undertaken to date. With this in mind, significant cumulative impacts are not anticipated as a result of this activity, and numerous safeguards further ensure that the potentially sensitive environment of the project area will not be significantly affected. All activities would be conducted in a manner compatible with the management direction of the Monument Proclamation in that the activities do not diminish monument resources, qualities, and ecological integrity, or have any indirect, secondary, cultural, or cumulative effects. The joint permit review process did not reveal any anticipated indirect or cumulative impacts, nor did it raise any cultural concerns, that would occur as a result of these activities.

The activities would primarily be conducted by field biologists operating from the NOAA monk seal field camps throughout the Monument. Deployment of personnel and supplies at field camps throughout the Monument is covered under the Manager’s permit PMNM-2011-001, and is typically conducted from the NOAA Ship OSCAR ELTON SETTE which operates under permit PMNM-2011-008. Deworming activities would occur at French Frigate Shoals, Laysan Island, and Lisianski Island, and would be conducted throughout the year. Captive care collections could occur at any of the six main NWHI subpopulations areas (French Frigate Shoals, Laysan I., Lisianski I., Pearl and Hermes Reef, Midway Atoll and Kure Atoll). These activities would be conducted intermittently on a to-be-determined schedule based on the availability of vessels or other modes of transport.

Any other concurrent activities which involve Hawaiian monk seal research and handling over the next year would also be coordinated and overseen by Dr. Charles Littnan’s team at the Pacific Islands Fisheries Science Center. As such, all potential concurrent activities would be highly coordinated and are not anticipated to have significant cumulative impacts.

Since no significant cumulative impacts or significant impacts with respect to any particularly sensitive aspect of the project area are anticipated, the categorical exemptions identified above should remain applicable.

4. Overall Impacts will Probably be Minimal and Insignificant Any foreseeable impacts from the proposed activity will probably be minimal, and further mitigated by general and specific

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conditions attached to the permit. Specifically, all research activities covered by this permit will be carried out with strict safeguards for the natural, historic, and cultural resources of the Monument as required by Presidential Proclamation 8031, other applicable law and agency policies and standard operating procedures.

Conclusion. Upon consideration of the permit to be approved by the Board of Land and Natural Resources, the potential effects of the above listed project as provided by Chapter 343, HRS and Chapter 11-200 HAR, have been determined to be of probable minimal or no significant effect on the environment and exempt from the preparation of an environmental assessment.

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William J. Aila Jr.  
Board of Land and Natural Resources

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Date